BUREAU OF WATER

Water System Viability Guidance

A guide to evaluating system viability for proposed public water systems

April 1999

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PROMOTE PROTECT PROSPER
South Carolina Department of Health and Environmental Control

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I. Introduction

In 1993, the South Carolina General Assembly amended the State Safe Drinking Water Act (SDWA) to grant the South Carolina Department of Health and Environmental Control (DHEC) the authority to:

- ➢ deny a permit for a new system if connecting to an existing viable water system is feasible; and,
- ➢ to consider viability as a criterion when making permitting decisions for new water systems.

In 1995 the State Primary Drinking Water Regulations (SPDWR) were amended to require that the applicant of any new system which proposes; 1) its own source of water; or, 2) to connect to an existing viable water system but intends to sell or treat the water it receives from the existing system, demonstrate that the new water system will be a "viable water system". **Also,** for any new water system which proposes to develop its own water source (e.g., drill a well), this viability demonstration must include an evaluation of the feasibility of connecting to an existing viable public water system [R.61-58.1(B)(4)].

A **"viable water system"** is defined in the SPDWR as a water system that is self-sustaining and has the commitment and the financial, managerial and technical capability to consistently comply with the SDWA and the SPDWR.

This demonstration of viability must be presented to the Department in the form of a Preliminary Engineering Report (PER) or as an engineering report submitted when applying for a permit to construct [R.61-58.1(B)(4)]. The purpose of this "Water System Viability Guidance" is to provide an outline of information needed to be included in the PER or engineering report. While this document outlines a variety of issues that typically should be addressed, each project needs to be addressed on a case-by-case basis.

Special Note to the User of this Document

This guide is subject to change due to future revisions of the Federal and State SDWA and SPDWR. The latest version of this document can be found on the South Carolina Department of Health and Environmental Control, Bureau of Water's Web Page at *www.state.sc.us/dhec/eqc/water/pubs/viability.pdf*.

The Department invites suggestions from anyone using this document on how it can be improved. Please submit any suggestions to:

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II. Definitions

The following definitions from the SDWA and the SPDWR are provided for some of the more commonly used terms in this guidance document.

"Certified Laboratory" means a laboratory approved by the Department under Regulation 61-81.

"Community Water System" (CWS) means a public water system which serves at least fifteen service connections used by year-round residents or regularly serves at least twenty-five year-round residents. This may include, but not be limited to, subdivisions, municipalities, mobile home parks, apartments, etc.

"Non-community water system" (NCWS) means a public water system which serves at least fifteen (15) service connections or regularly serves an average of at least twenty-five (25) individuals daily at least sixty (60) days out of the year, and does not meet the definition of a community water system.

"Non-transient non-community water system" (NTNCWS) means a public water system that is not a community water system and that regularly serves at least twenty-five (25) of the same persons over six months per year.

"Public Water System" means (1) any public or privately owned waterworks system which provides drinking water, whether bottled or piped, for human consumption, including the source of supply whether the source of supply is of surface or subsurface origin; (2) all structures and appurtenances used for the collection, treatment, storage or distribution of drinking water delivered to consumers; (3) any part or portion of the system and including any water treatment facility which in any way alters the physical, chemical, radiological, or bacteriological characteristics of drinking water; provided, that public water system shall not include a drinking water system serving a single private residence or dwelling. A separately owned system with its source of supply from another waterworks system shall be a separate public water system.

"State Water System" (SWS) means any water system that serves less than fifteen (15) service connections or regularly serves an average of less than twenty-five (25) individuals daily.

"Tap" means a service connection, the point at which water is delivered to the consumer (building, dwelling, commercial establishment, camping space, industry, etc.) from a distribution system, whether metered or not and regardless of whether there is a user charge for consumption of the water.

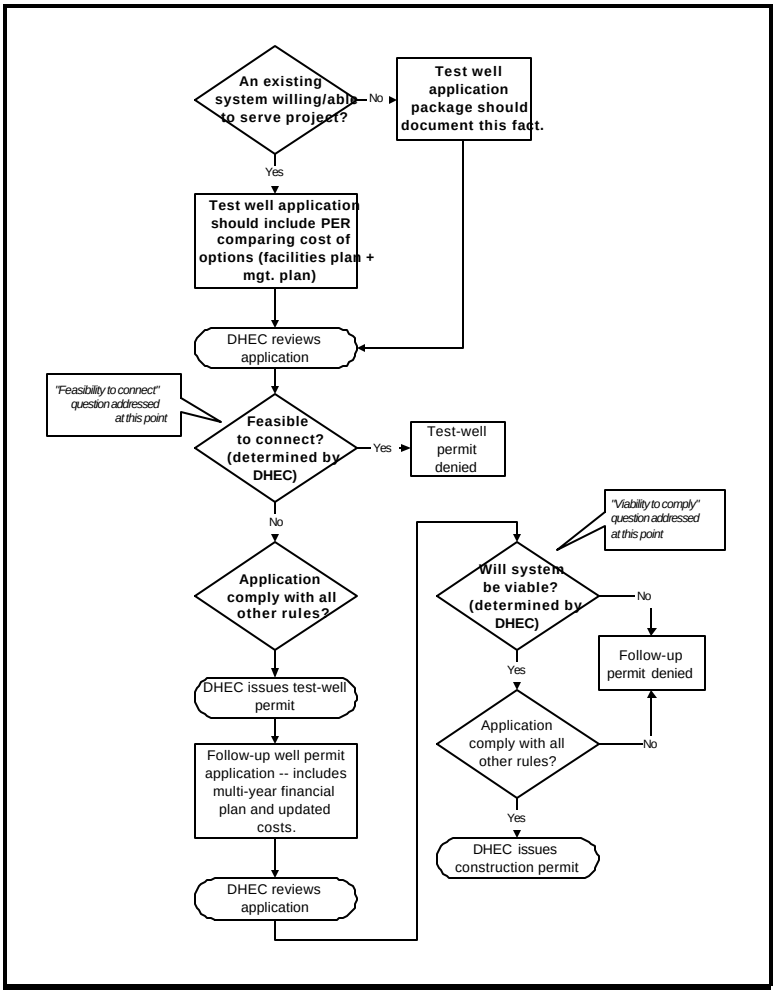
"Transient non-community water system" (TNCWS) means a non-community water system that does not regularly serve at least 25 of the same persons over six months per year.

III. Procedure for Demonstrating Viability

A. A New System Proposing to Develop its Own Source of Water

1. New Groundwater Sources

NEW SYSTEMS VIA NEW WELLS (Figure 1)



a. The applicant must first determine if there are any existing water systems willing and able to supply water to the project. The applicant may wish to call the local DHEC Environmental Quality Control Office (Appendix A) for assistance in identifying any existing systems which may be able to serve the project. It will be up to the applicant to ask if the existing system is willing to serve the project.

b. A few items that should be considered when determining if an existing water system is able to supply water to a project are as follows (there may be others):

i. Quantity of Water - Does the existing system have enough water to meet its existing demand and the demand of the new system?

ii. Flow and Pressure Available at the Point of Connection - Is the flow and pressure adequate at the point of connection to meet the demands of the new system. The SPDWR requires that a minimum pressure of 25 psi must be maintained in the distribution system during conditions of maximum instantaneous demand and that a minimum pressure of 20 psi must be maintained during unusually heavy flows (i.e., fire flow or flushing flow)

iii. Overall Rating of the Last Sanitary Survey - The viability of an existing system may be in question if the overall rating of the last sanitary survey is “unsatisfactory”, unless steps have been taken to correct the deficiencies.

iv. Tap Moratorium - Is the existing system currently under a “tap moratorium” issued by DHEC?

v. Easements - Will the applicant or owner of the existing system be able to obtain the necessary easements to construct and maintain water lines through property not owned by either the applicant or the owner of the existing system?

vi. Physical Barriers - Are there any physical barriers which would prevent the connection to an existing system. For example, although controlled access highway can be crossed, easements will only be granted to certain entities and special construction techniques must be used and approved by the South Carolina Department of Public Transportation. The same issues apply to the crossing of railroads.

c. If there are no existing water systems willing or able to serve the project, the application for the test well permit [step one of the two step permitting process, refer to Section R.61-58.1(B)(8) of the SPDWR] must include a written explanation as to why. This explanation should include a listing of the systems considered, distances to each existing system, and why each existing system is not willing or able to serve the proposed project. Please provide a copy of any written correspondence between the applicant and the existing system(s). If there are no existing systems willing or able to serve the project, no further evaluation concerning the feasibility of connecting to an existing viable water system is required and a permit to construct a test well(s) may be issued, provided the application complies with all other applicable permitting requirements of the SPDWR.

d. If there is an existing water system(s) willing and able to serve the project, the application for the test well permit [step one of the two step permitting process, refer to Section R.61-58.1(B)(8) of the SPDWR] must include an engineering report evaluating the capital cost of connecting to an existing system and the capital cost of constructing a new source and the operation and maintenance costs of both alternatives [R.61-58.1(B)(4)]. This may be accomplished by developing a facilities plan and a management plan for inclusion in the report. Please refer to Sections III and IV of this document for guidance on preparing these plans. DHEC will use the information presented in the report to help make a determination as to whether or not it is feasible to connect to an existing system.

i. If DHEC determines that it is feasible to connect to an existing system, a permit to construct a test well will be denied.

Please note that one component of DHEC's strategy to enhance the viability of public water systems is to minimize the proliferation of small water systems. Therefore, if a water line from an existing viable system is adjacent to the applicant's property and the existing systems is willing and able to serve the project, it will be difficult for the applicant to prove that it will not be feasible to connect. A water line which is separated from an applicant's property by a public right-of-way is considered to be adjacent to the applicant's property, except in the case of a controlled access highway as defined by the South Carolina Department of Transportation, a navigable stream as that term used in S.C. Code Ann. § 49-1-10 (Law. Coop. 1987) or a railroad.

ii. If DHEC determines that it is not feasible to connect to an existing system, a permit to construct a test well(s) may be issued, provided the application complies with all other applicable permitting requirements of the SPDWR.

e. The follow-up application to the test well permit [step two of the two step permitting process, refer to Section R.61-58.1(B)(8) of the SPDWR] must include a multi-year financial plan [R.61-58.1(B)(4)]. As a result of drilling the test well, several factors concerning the final design are known (e.g., actual cost of drilling the well, water quality, well yield and drawdown). Therefore, a revised cost estimate for the construction, operation and maintenance of the chosen alternative (well system) must be developed and submitted with the financial plan. Please refer to Section V

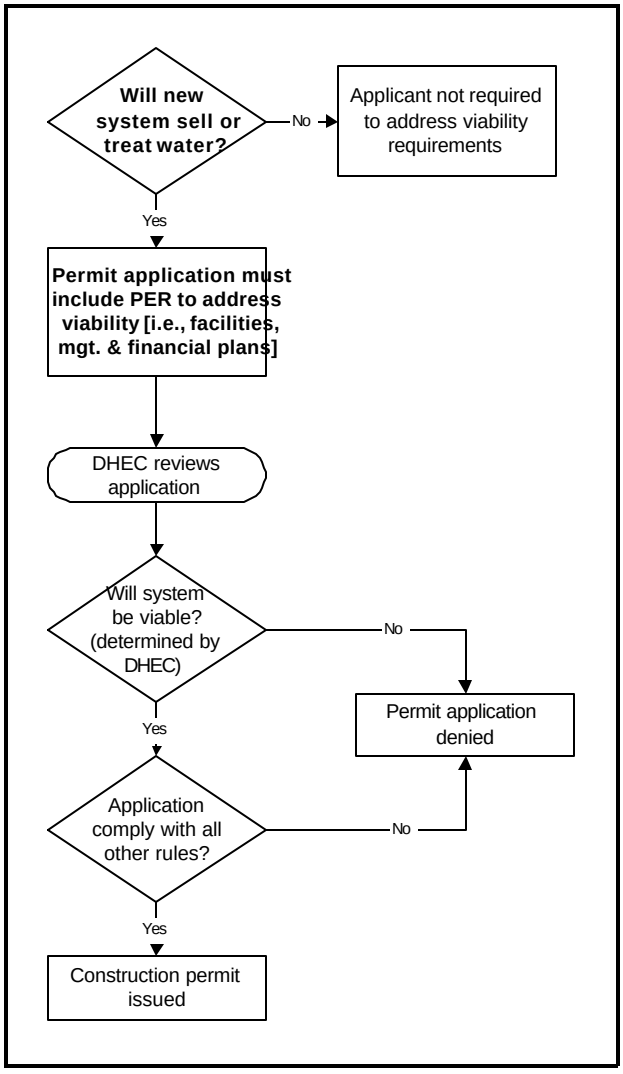
of this document for guidance on preparing a financial plan. This information should be presented in the form of an engineering report with the follow-up permit application. DHEC will use the information submitted to help make a determination as to whether or not the proposed system will be a "viable water system". If the applicant fails to prove to the Department's satisfaction that the system will be a "viable water system" a permit to construct will be denied [R.61-58.1(B)(10)(c)].

2. New Surface Water Sources

a. The first step in obtaining a permit to construct a new surface water source and treatment plant is to prepare and submit a PER to the Department for review and approval [R.61-58.1(C)]. The PER must include a detailed engineering and economic assessment on the feasibility of utilizing other water sources other than the proposed surface water source [R.61-58.1(C)(2)(j)]. This may be accomplished by preparing a facilities plan and a management plan for inclusion in the PER. Please refer to Sections III and IV of this document for guidance on preparing these plans. DHEC will use the information presented in the report to help make a determination as to whether or not it is feasible to connect to an existing system. DHEC will not approve the PER for the development of a new surface water source if it determines that it is feasible to connect to an existing system.

b. The next step is the submission of an application for a permit to construct the new surface water source and treatment plant along with the associated storage facilities and distribution system. This application must include a multi-year financial plan [R.61-58.1(B)(4)]. A revised cost estimate, based on the final design, for the construction, operation and maintenance of the chosen alternative must be developed and submitted with the financial plan. Please refer to Section V of this document for guidance on preparing a financial plan. DHEC will use the information submitted to help make a determination as to whether or not the proposed system will be a "viable water system". If the applicant fails to prove to the Department's satisfaction that the system will be a "viable water system" a permit to construct will be denied [R.61-58.1(B)(10)(c)].

NEW SYSTEMS VIA MASTER METER: Figure 2



B. A New System Proposing to Connect to an Existing System

If the applicant intends to sell or treat the water it receives from the existing system to which it is connecting, the application for a permit to construct must include an engineering report demonstrating that the proposed new water system will be a "viable water system" [R.61-58.1(B)(4)]. This may be accomplished by developing a facilities plan, a management plan and a financial plan for inclusion in the report. Please refer to Sections III, IV and V of this

document for guidance on preparing these plans. Please note that the plans need only evaluate the chosen alternative of connecting the existing system. DHEC will use the information submitted to help make a determination as to whether or not the proposed system will be a "viable water system". If the applicant fails to prove to the Department's satisfaction that the system will be a "viable water system" a permit to construct will be denied [R.61-58.1(B)(10)(c)].

IV. Facilities Plan

A. Definition

A "facilities plan" for a proposed new water system consists of an assessment of the water supply needs; a detailed description of alternatives considered for meeting those needs; detailed cost estimates for the construction, operation and maintenance of the different alternatives; and the rationale for the alternative selected [R.61-58.(B)].

B. Assessment of the Water Supply Needs

1. If not already included as part of the application package, provide a location map and a brief description of the project for which water is needed. A couple of examples are as follows:

    a. Example # 1: Water is needed for a new development consisting of 100 single family residences with lot sizes ranging from 1 to 2 acres. The name of the development is John Doe Subdivision and is located off of SC Highway 176 in Richland County. A map showing the location of the proposed development is attached.

    b. Example # 2: Water is needed for a new restaurant located on SC Highway 301 approximately 1 mile west of Interstate Highway 26 in Orangeburg county. The name of the restaurant is Jane Doe's Country Restaurant. The restaurant will employ a total of 20 people working two shifts (10 employees per shift) and will have seating for 100 people. A map showing the location of the proposed restaurant is attached.

2. If not already included as part of the application package, calculate the following water demands for the proposed project (provide calculations):

    a. Average daily demand;

    b. Maximum day demand;

    c. Peak hourly flow;

    d. Instantaneous demand; and,

    e. Maximum instantaneous demand.

C. Alternatives for Meeting the Water Supply Needs

Provide a detailed description of alternatives considered for meeting the water supply needs of the project.

1. Is there a local government which has potable water planning authority over the area in which the project is located? If so, the applicant should determine the requirements of the planning authority. Section R.61-58.1(B)(2)(g) of the SPDWR requires that if there is such an authority, the application for a permit to construct must include a letter from the local government stating that the proposed project is consistent with the water supply service plan for the area. This may limit the alternatives available for the applicant to consider.

2. Are there any existing public water systems near the proposed project? Provide a list of all existing public water systems near the proposed project. "Near" is a relative term; however, for the purpose of evaluating available alternatives the applicant should consider the following distances as "near".

a. One half (1/2) mile for a proposed SWS or TNCWS;

b. Two (2) miles for a proposed NTNCWS or CWSs serving fewer the fifty (50) taps or fewer than one hundred fifty (150) people;

c. three (3) miles for a proposed CWS serving between 50 and 299 taps; and,

d. for a proposed CWS serving 300 or more taps the distance will depend on the size of the system.

3. Are any of the existing systems near the proposed project able to supply water to the project? A few items that should be considered when determining if an existing water system is able to supply water to a project are as follows, (there may be others):

   a. Quantity of Water - Does the existing system have enough water to meet it's existing demand and the demand of the new system?

   b. Flow and Pressure Available at the Point of Connection - Is the flow and pressure adequate at the point of connection to meet the demands of the new system. The SPDWR requires that a minimum pressure of 25 psi must be maintained in the distribution system during conditions of maximum instantaneous demand and that a minimum pressure of 20 psi must be maintained during unusually heavy flows (i.e., fire flow or flushing flow).

   c. Overall Rating of the Last Sanitary Survey - The viability of an existing system may be in question if the overall rating of the last sanitary survey is "unsatisfactory", unless steps have been taken to correct the deficiencies.

   d. Tap Moratorium - Is the existing system currently under a "tap moratorium" issued by DHEC?

   e. Easements - Will the applicant or owner of the existing system be able to obtain the necessary easements to construct and maintain water lines through property not owned by either the applicant or the owner of the existing system?

   f. Physical Barriers - Are there any physical barriers which would prevent the connection to an existing system? For example, although a controlled access highway can be crossed, easements will only be granted to certain entities and special construction techniques must be used and approved by the South Carolina Department of Public Transportation.

4. Are any of the existing systems which are able to serve the proposed project willing to serve the project? If so, list the systems.

5. For those existing water systems near the proposed project which are not willing or able to serve the project, provide a written explanation as to why. Provide a copy of any written correspondence between the applicant and the existing system(s).

6. Is the development of a new source of water an option? Will the applicant be able to comply with the siting requirements for a new source as outlined in the SPDWR [R.61-58.2(B) and R.61-58.3(B)]?
   a. The location of a new well(s) must be at least one hundred (100) feet from all potential pollution sources. A pollution source is defined as, but not limited to: sewer lines; septic tank/drain fields; animal feedlots, barns and stables; waste disposal-land application sites; waste treatment lagoons; chemical, pesticide and petroleum storage/handling sites and sanitary landfills. Does the project have sufficient property to construct a well with a one hundred (100) ft pollution free radius? If not, will the applicant be able to obtain a legal pollution free easement from the adjacent property owner.

Please note that easements must be filed at the county courthouse and proof of this filing must be submitted to DHEC.

b. The location of a well(s) must be at least fifty (50) feet from any surface water body (e.g., lakes streams, rivers, drainage ditches which normally have water flowing through them, etc.).

c. If the applicant is not able to obtain the required one hundred (100) ft pollution free easement or construct the well(s) at least fifty (50) feet from a surface water body, describe how the well(s) may be constructed to justify a smaller pollution free radius or justify being located within fifty feet of a surface water body.

d. **Please note** that, in accordance with Section R.61-58.1(E)(2)(i) of the SPDWR, the engineering plans must include the location of all real or potential sources of pollution within two hundred fifty (250) feet of a groundwater source **or** within the well head protection area, **which ever is greater**. Please refer to DHEC's Source Water Assessment and Protection Program guidance document for information on how to determine the size of a wellhead protection area for proposed wells.

e. The siting of surface water intake structures must be evaluated in accordance with the requirements outlined in Section R.61-58.3(B) of the SPDWR and DHEC's Source Water Assessment and Protection Program guidance document.

D. Detailed Estimate of the Capital Cost of Construction for each Alternative Available

1. In order to develop a detailed cost estimate, a preliminary engineering design for each alternative must be prepared.

2. Develop a **detailed** cost estimate for each alternative. The applicant may use the tables in Appendix B or develop his/her own itemized list. Due to the complexity of surface water treatment facilities, a table is not provided for estimating the cost of developing such sources. Please note that it is very important that any estimate be detailed enough so that the reviewer is insured that all costs have been included and that they are realistic. The best way to ensure that the cost estimates are as accurate as possible, is to obtain a quote or bid for the work or use information from recent bids taken on similar type and size jobs in the area where the project is located. **Please note** that it is also very important that the estimates be complete. **Failure to submit a complete estimate (estimate of all costs) will result in delaying DHEC's decision on the permit application.**

3. Provide a copy of all quotes or bids obtained for the purpose of developing the cost estimate or provide references as to where the information was obtained (i.e., recent bid information, etc.). If the Applicant chooses to use the tables in Appendix B, please enter "N/A" in the cost column for any item which does not apply. The items listed in each table should be self explanatory; however, some items which may need further explanation are as follows:

   a. Total Coliform Analyses: Total coliform samples must be collected as follows and analyzed by a certified laboratory. The applicant should obtain a written cost estimate from a certified laboratory that would likely conduct these analyses.

      i. Distribution system: At least two samples, taken 24 hours apart, must be collected from the distribution system.

      ii. Well: At least two samples, taken 24 hours apart, must be collected from each well.

iii. Storage tanks: At least two samples, taken 24 hours apart, must be collected from each storage tank.

b. Well Head Piping: The cost for well head piping should include the cost of the pipe and all appurtenances required under Section R.61-58.2(B)(16) of the SPDWR (e.g., sanitary seal, casing vent, check valve, sampling tap, blowoff valve, meter, isolation valve, pressure relief valve, etc.)

c. Treatment Equipment: Provide an itemized list of treatment equipment and cost (including installation cost). Include the total estimated cost in the table for this item.

d. Water Quality Analyses: Water samples must be collected from each well as follows and analyzed by a certified laboratory. The applicant should obtain a written cost estimate from a certified laboratory that would likely conduct these analyses.

i. Wells serving SWSs and TNCWSs must be sampled and analyzed for nitrate, nitrite, iron, manganese and any other water quality parameter listed in Appendix D that DHEC deems necessary on a case by case basis, as part of the construction permitting process.

ii. Wells serving CWSs and NTNCWSs must be sampled for the water quality parameters listed in Appendix D as part of the construction permitting process.

e. Other Costs: Provide an itemized listing of any additional costs not listed in the tables. Enter the total of such costs under this item in each table.

E. Detailed Cost Estimate of the Operation and Maintenance of Each Alternative Available

1. Develop a **detailed** cost estimate for the annual operation and maintenance costs of each alternative. The applicant may use the tables in Appendix C or develop his/her own itemized list. Due to the complexity of surface water treatment facilities, a table is not provided for estimating the annual operation and maintenance cost for such an alternative. **Please note** that it is very important that any estimate be detailed enough so that the reviewer is insured that all costs have been included and that they are realistic. It is also very important that the estimates be complete. **Failure to submit a complete estimate (estimate of all costs) will result in delaying DHEC's decision on the permit application.**

2. If the Applicant chooses to use the tables in Appendix C, please enter "N/A" in the cost column for any item which does not apply. The following is an explanation of each item listed in the tables provided in Appendix C. Provide the supporting information and calculations requested for each item.

a. Cost of Water from Existing System: Estimate the annual cost of water using the average daily demand for the project and the user rates charged by the system. Provide a copy of the user rate charges and calculations for estimating this annual cost.

b. Testing of Backflow Prevention Device: Annual testing by a person certified by DHEC is required for each double check valve assembly and reduced pressure backflow prevention device installed. Provide a copy of a quote from a certified tester who may perform this annual test.

c. DHEC Fee/Water Quality Monitoring **if Connecting to an Existing System**: If the applicant does not plan to sell or treat the water it receives from the existing water system the cost for this item is zero.

However, if the applicant plans to sell or treat the water it receives from the existing water system, the new system serving the project will be required to pay an annual DHEC Fee. The amount of the fee is established in the General Appropriations Bill and is subject to change annually. Please contact the Drinking Water Fee Coordinator in the Permit and Data Administration Section of DHEC's Bureau of Water, at (803) 898-4300 for the amount of the annual fee for the type of system in question (i.e., CWS, NTNCWS, TNCWS, and SWS). In return for the fee, DHEC will conduct all monitoring required by the SPDWR except for the bacteriological and disinfectant residual monitoring of the distribution system for CWS and NTNCWSs. Please have the following information available, where applicable, when calling for fee information:

- system type (CWS , NTNCWS, TNCWS and SWS)
- total number of taps to be served (for CWS and NTNCWS only)
- total population to be served once the development has been completed (for CWS and NTNCWS only)

The frequency and location of the bacteriological monitoring will be based on a written sample siting plan developed by the owner or operator of the system. However, for the purpose of estimating the cost of monitoring, assume:

- for **CWSs**, monthly monitoring based on the population served. Refer to Section R.61-58.5(I)(1)(b) of the SPDWR for the number of monthly samples required based on the population served.
- for **NCWSs**, one (1) sample per quarter (4 samples annually) if the system serves on an average of 1000 or fewer persons per day. If the system serves, on average, more than 1000 persons per day for any one month, or the water comes from a surface water source in total or in part, or the water comes from a groundwater source under the direct influence of surface water, monitoring shall be conducted monthly and at the same frequency as a like sized CWS, as specified in Section R.61-58.5(I)(1)(b) of the SPDWR.

If the water from the existing system comes in total or in part from a surface water source, or from a groundwater source under the direct influence of surface water, the owner must monitor the disinfectant residual in the water at the same time and location that the bacteriological sample(s) is taken. This requirement applies to both CWS and NCWSs.

These samples must be analyzed by a certified laboratory. The applicant should obtain a written cost estimate from a certified laboratory that would likely conduct these analyses. Provide a copy of written cost estimates and calculations used to determine the annual cost for this item.

d. DHEC Fee/Water Quality Monitoring **if Constructing a New Source (Well)**: The owner of the new water system will be required to pay an annual DHEC Fee. The amount of the fee is established in the General Appropriations Bill and is subject to change annually. Please contact the Drinking Water Fee Coordinator in the Permit and Data Administration Section of DHEC's Bureau of Water, at (803) 898-4300 for the amount of the annual fee for the type of system in question (i.e., CWS, NTNCWS, TNCWS, and SWS). In return for the fee, DHEC will conduct all monitoring required by the SPDWR except for the:

- bacteriological and disinfectant residual monitoring of the distribution system for CWSs and NTNCWSs;

- raw water bacteriological monitoring, disinfection contact time, and disinfectant residual monitoring entering the distribution system for surface water sources and ground water sources under the direct influence of surface water;

- water quality parameters required for compliance monitoring under the Lead and Copper Rule; and,

- water quality and process control type monitoring required by the Interim Enhanced Surface Water Treatment Rule and Disinfectants/Disinfection By Products Rule.

Please have the following information available, where applicable, when calling for fee information:

- system type (CWS , NTNCWS, TNCWS and SWS)

- total number of taps to be served (for CWS and NTNCWS only)

- total population to be served once the development has been completed (for CWS and NTNCWS only)

- number of wells and surface water sources (for CWS and NTNCWS only and does not include master meter connections,)

When evaluating the viability of a proposed water system, the amount of the annual DHEC fee **plus** the annual costs of any required monitoring not covered by the fee (e.g., bacteriological and disinfectant residual monitoring of the distribution system for CWSs and NTNCWSs, etc.) should be used for this item.

However; when evaluating the feasibility of connecting to an existing system, Section R.61-58.1(B)(4) of the SPDWR requires that "Any cost comparisons between creating a new water system with its own source of water and connecting to an existing viable water system shall not be based on any subsidized monitoring." Therefore; the applicant must determine what the annual cost would be if he/she where responsible for paying the full cost of monitoring (self monitoring) the water quality in accordance with the SPDWR. If the cost of self monitoring is greater than the annual DHEC Fee, it must be used for this item in the table in Appendix C.

For the purpose of estimating the cost of self monitoring, the applicant may assume the following sampling frequencies:

i. Nitrate: 1 sample per year from each well (applies to CWS and NCWS)

ii. Nitrite: 1 sample from each well every 9 years (applies to CWS and NCWS)

iii. Inorganic Chemical: 1 sample from each well every three years. Cyanide monitoring may be waived if continuous chlorination treatment is provided. (applies to CWS and NTNCWS)

iv. Synthetic Organic Chemicals: (applies to CWS and NTNCWS)

Initial Monitoring (begins once the new system is placed into operation)

- 1 sample from each well every 3 years for systems with fewer than 150 taps.
- 2 consecutive quarterly samples from each well every 3 years for systems with a population less than 3300 and more than 150 taps.

- ➢ 4 consecutive quarterly samples from each well every 3 years for systems with a population greater than 3300.

Routine Monitoring (after the initial monitoring has been completed):

- ➢ 1 sample from each well every 3 years for systems with a population of less than 3300.
- ➢ 2 consecutive quarterly samples every 3 years for systems with a population of greater than 3300.

v. Volatile Organic Chemicals: 4 consecutive quarterly samples from each well during the initial 3 year monitoring cycle, then 1 sample from each well every three years. (applies to CWS and NTNCWS)

vi. Radiolonuclides: 4 consecutive quarterly samples from each well during the initial 3 year monitoring cycle, then 1 sample from each well every three years. (applies to CWS and NTNCWS)

vii. Bacteriological Monitoring: (applies to CWS and NCWS) The frequency and location of the bacteriological monitoring will be based on a written sample siting plan developed by the owner or operator of the system. However, for the purpose of estimating the cost of monitoring, assume:

- ➢ for **CWSs**, monthly monitoring based on the population served. Refer to Section R.61-58.5(I)(1)(b) of the SPDWR for the number of monthly samples required based on the population served.

- ➢ for **NCWSs**, one (1) sample per quarter (4 sample annually) if the system serves on an average of 1000 or fewer persons per day. If the system serves, on average, more than 1000 persons per day for any one month, or the water comes from a surface water source in total or in part, or the water comes from a groundwater source under the direct influence of surface water, monitoring shall be conducted monthly and at the same frequency as a like sized CWS, as specified in Section R.61-58.5(I)(1)(b) of the SPDWR.

viii. Special Monitoring: (applies to CWS and NTNCWS)

Wells located within two hundred feet of a body of water, or constructed such that water is being drawn from less than fifty (50) feet in depth, or constructed such that the filter material extends to less than fifty (50) feet below grade, must be monitored to determine if the well is under the direct influence of surface water [R.61-58.2(B)(3)(c)]. Refer to Section R.61-58.2(B)(14)(c) for the special monitoring requirements to determine if a well is under the direct influence of surface water.

ix. Lead and Copper: (applies to CWS and NTNCWS)

- ➢ 2 rounds of sampling (standard monitoring) at least 6 months apart during the first year of operation.
- ➢ 1 round of sampling (reduced monitoring) during each of the next three years.
- ➢ 1 round of sampling (reduced monitoring) every 3 years thereafter.

Please refer to Section R.61-58.11(H)(3) to determine the number of samples required per round of sampling.

x. Surface Water Treatment Rule and Interim Enhanced Surface Water Treatment Rule:

If the new water source is surface water or from a groundwater source under the direct influence of surface water, the owner must comply with the requirements of the Surface Water Treatment Rule (R.61-58.10) and the Interim Enhanced Surface Water Treatment Rule which was promulgated by EPA on December 16, 1998. Due to the complexity of these two rules the specific requirements are not included in this guide. The applicant should contact the Department's Bureau of Water for information concerning these requirements.

xi. Disinfectants/Disinfection By-Products: (applies to CWS and NCWS)

New federal regulations concerning disinfectants and disinfection by-products were promulgated on December 16, 1998. These regulations expand the number of parameters to be monitored as well as the number of systems to be monitored. These requirement apply to:

- CWS and NTNCWS that treat their water with a chemical disinfectant for either primary or residual treatment; and

- TNCWS that apply chlorine dioxide as a disinfectant or oxidant.

For most of the 1980's and 1990's, only CWSs which served more than 10,000 people (including consecutive systems) were required to monitor for Total Trihalomethanes (bromodichloromethane, dibromochloromethane, tribromomethane, and trichloromethane). The new regulations lower the maximum contaminant level (MCL) for Total Trihalomethanes from 0.1 milligrams per liter (mg/l) to 0.08 (mg/l), include additional disinfectant by-products to be monitored for and expands this monitoring to all CWS and NTNCWS that treat their water with a chemical disinfectant. There are also several other MCL's and monitoring and reporting requirements. Due to the complexity of this rule, the specific requirements are not included in this guide. The applicant should contact the Department's Bureau of Water for information concerning these requirements.

Note: The above sampling frequencies represent the minimum monitoring requirements. If any of the parameters are detected, additional monitoring may be required.

e. Chemicals: If treatment is provided determine the cost of chemicals based on the average daily demand. Provide calculations, including assumptions, for determining the annual cost of chemicals.

f. Electricity: Provide calculations for estimating the cost of electricity.

g. Maintenance: Describe in detail any maintenance cost that will be incurred by the system and the basis for determining the cost of such maintenance. For example: Meters need to be checked and replaced periodically, storage tanks must be periodically inspected, cleaned and painted, etc.

h. South Carolina Public Service Commission (PSC): If the applicant plans to sell water it may be required to register and obtain approval from the PSC prior to charging for the water. Please note that Homeowner's/Property Owner's Associations are governed by the Rules and Regulations of the PSC. The applicant should contact the PSC's Utilities Department at (803) 737-5155 for information concerning their requirements. Will the applicant incur any additional cost as a result of PSC requirements (e.g., bonding, etc.)?

g. Operator/Administrative Costs: Before estimating these costs the applicant will need to prepare a management plan for this alternative and then develop an itemized list of costs for implementing the

plan (e.g., salaries, contractual operations costs, etc.). Provide an itemized listing of these costs. Enter the total of such costs under this item in each table.

h. Other Costs: In some cases the applicant may incur other costs under this alternative (e.g., additional taxes or fees, etc.).

F. Rationale for Selecting the Alternative for Meeting the Water Supply Needs

Describe in detail the rationale for the alternative selected. Both non-monetary and monetary factors should be addressed in this discussion. Non-monetary factors may include, but are not limited to, environmental effects, implementability, operability, performance reliability and institutional issues.

The level of detail depends upon the scope and complexity of the project; however, the discussion should present a concise, technically reasonable rationale.

Please note that one component of DHEC's strategy to enhance the viability of public water systems is to minimize the proliferation of small water systems. Therefore, if a water line from an existing viable system is adjacent to the applicant's property and the existing systems is willing and able to serve the project, it will be difficult for the applicant to prove that it will not be feasible to connect. A water line which is separated from an applicant's property by a public right-of-way is considered to be adjacent to the applicant's property, except in the case of a controlled access highway as defined by the South Carolina Department of Transportation, a navigable stream as that term used in S.C. Code Ann. § 49-1-10 (Law. Coop. 1987) or a railroad.

V. Management Plan

A. Definition

The management plan for a proposed new water system consists of the identification of a water system's owner; description of the management structure; an organizational chart; staffing requirements and duties; identification of any outside services and a copy of any service agreements; a copy of the system's operation and maintenance procedures required by R.61-58.7(B); and a detailed estimate of costs for the operation and maintenance of the system as they relate to the management plan, unless included in the cost estimate for the facilities plan [R.61-58(B)].

B. Ownership

Provide the name, address, telephone number, fax number and emergency number if applicable of the owner of the system once it is constructed and placed into operation.

If the system is to be owned by someone other than the applicant once the system is placed into operation (e.g., a private utility company, Homeowner's Association, etc), provide a copy of agreements/contracts which have been or will be entered into between the applicant and the new owner(s).

If the new system is to be owned by a Homeowner's/Property Owner's Association, the management plan must include proof that the association has been registered with the Secretary of State (i.e., copy of the association's Corporate Charter for Non-Profit Organizations).

C. Management Structure

For each alternative, describe the management structure and provide the name, address, telephone number, fax number and emergency number of the person responsible for the day to day management of the water system, if different from the owner.

D. Organizational Chart

Provide an organizational chart (e.g., who reports to who) for each alternative.

E. Staffing Requirements and Duties

Provide the following information for each alternative, where applicable:

1. In accordance with the SPDWR, all treatment facilities must be monitored by an operator of the appropriate grade, at a frequency to ensure proper operation, but in no case less than once a day (i.e., 7 days a week). Such monitoring may be accomplished through site visits and/or remote monitoring equipment approved by the Department. Provide the name and certification number of the operator(s) responsible for operating the treatment facilities, if applicable. **Please note** that in the future certified operators will be required for all CWS and NTNCWS.

2. Describe any additional staffing requirements necessary to operate and manage the water system (e.g., meter reading, billing, meter installation, meter testing, waterline repair, etc.) and the names of the persons responsible for each.

3. Provide a listing of job duties for each person responsible for the operation and management of the water system. Include all job duties, even if they have nothing to do with the water system for which this plan

is prepared. For example: is the certified operator responsible for other water systems, or does he/she have other job duties. Does the operator have enough time to carry out the required duties?

4. Is the staffing adequate? When evaluating the adequacy of staffing the management must consider days off, vacation time, sick leave, and the time it takes to perform the job duties. Remember that treatment facilities must be visited daily (i.e., 7 days a week). If an operator is responsible for other water systems how long does it take him/her at each facility and how long does it take to travel to each facility? The management plan must provide enough information to show adequate staffing.
5. If the operator owns, or is responsible for the operation, of any existing public water systems, are those existing systems in compliance with the SPDWR? This includes:

   a. in compliance with all applicable monitoring and reporting requirements;

   b. in compliance with all maximum contaminant levels;

   c. being up-to-date with all fee payments to DHEC; and,

   d. having received an overall "satisfactory rating" on the most recent sanitary survey for each system.

   Provide a listing (name and system number) of each system the operator owns and each system the operator is responsible for operating and the overall rating given during the last sanitary survey conducted by the Department. For each system that is not in compliance with the SPDWR, explain what is being done to bring the system into compliance.

   DHEC will take into consideration the operation and maintenance of existing facilities when making a permit decision for a proposed new system.

F. Identification of Outside Services

Provide the following information for each alternative, where applicable:

1. Line breaks and pump failures are inevitable. Does the system have the equipment and personnel to make such repairs? If so, list the equipment and personnel available. If not, provide the name, telephone number and emergency number of a plumbing contractor(s) and well driller(s) who could be called to make repairs to the water system in a timely manner.

2. List any other outside services and provide a copy of any service agreements. For example, the owner of a water system may enter into a contractual agreement with a certified operator, a certified laboratory or management firm. In the case of a system connecting to an existing water system, the owner of the new system may wish to contract with the existing utility to handle both the meter reading and billing functions.

G. Operation and Maintenance Procedures

Section R.61-58.7(B)(2) requires that each public water system have and maintain up-to-date written Standard Operating Procedures for the operation and maintenance of its system.

A complete management plan would normally include a copy of the system's operation and maintenance procedures; however, such procedures are difficult to finalize until after the systems is constructed. Therefore; a copy of such procedures will not be required until after the system is placed into operation.

Certain procedures will need to be completed prior to, or immediately following, DHEC's approval to place the system into operation (e.g., detailed instructions on starting and stopping treatment facilities, sample siting plan for total coliform monitoring of the distribution system, etc). However; all operating procedures should be completed within six months after the system has been approved to be placed into operation by DHEC.

H. Detailed Cost Estimate for the Operation and Maintenance of the System as it Relates to the Management Plan

Provide an itemized list of costs for implementing a management plan for each alternative (e.g., salaries, contractual operations costs, etc.). Include this cost in the appropriate line in Appendix C.

VI. Financial Plan

A. Definition

The financial plan for a proposed new water system consists of projections that a water system's revenues and cash flow will be sufficient for meeting the cost of construction, operation and maintenance for at least five (5) full years. The financial plan must also include assurances deemed necessary for the system to remain viable. Examples of some assurances are: 1) a projection of rates showing a significant coverage ratio; 2) escrow funds; 3) bonding; and, 4) letter of credit.

B. Detailed projection of annual expenses and revenues for a period of at least 5 years

For most NCWSs and SWSs the cost of operating the water system is a relatively small cost of doing business (e.g., restaurants, state parks, industries, small commercial businesses, etc.) and there is no charge for the water. However, it is still a cost and must be included as a budget item for the business. If this is the case, the financial plan must include a detailed listing of expected annual expenses for operating and maintaining the water system for at least each of the first five years of operation. The applicant may use the tables in Appendix E or develop his/her own itemized list. The financial plan must also include the following statement signed by the owner.

> *I hereby acknowledge that the cost of operating the water system serving (name of business) is a cost of doing business, and as such I will include the cost as a line item when preparing my annual budget. I furthermore certify that I will not charge for the water provided by this water system.*
>
> *Signature of Owner:* _____ *Date:* _____

If this is not the case (e.g., small mobile home parks and subdivisions serving fewer than 15 taps or 25 people, bottle water plants, etc), the financial plan must include the same information as for CWS as follows:

1. a detailed listing of expected annual revenues for at least each of the first five years of operation; and,

2. a detailed listing of expected annual expenses for at least each of the first five years of operation.

The plan must also include information (assumptions and calculations) justifying each expense and revenue projection. The applicant may use the tables in Appendix E or develop his/her own itemized list. Additional rows are provided for other itemized expenses and revenues.

C. Assurances that the system will remain viable

The financial plan must include assurances deemed necessary for the system to remain viable. Examples of some assurances are: 1)a projection of rates showing a significant coverage ratio; 2) escrow funds; 3) bonding; and, 4) letter of credit. Please discuss assurances to be taken by the owner to insure the financial viability of the system.

As indicated in the definition, a viable water system is one that is "self sustaining". However, in order for a new system serving a new development to remain viable, an infusion of cash from the developer may be needed for the first few years. The amount of money needed for each of the first few years will depend upon a realistic projection of expenses and of customers being added to the system each year. The financial plan must include information (assumptions and calculations) for determining how much money is needed. The amount needed each year must be included as a line item under "revenues" in Appendix E. The plan must address how this money will be provided by the developer over the course of the first five years of operation. Before DHEC will allow the system to be placed into operation, the owner must provide proof

that an amount equal to at least the first year for this line item be deposited in a bank account established for the purpose of paying for the operation of the water system.

In order to be considered "self-sustaining" a water system must have revenues exceeding the expenses (i.e., significant cost coverage ratio). The question now is how much coverage is needed? As a rule of thumb, the revenues should exceed the expenses by at least 20 percent. This amount should cover unexpected expenses as well as provide money for an asset replacement fund (funding of depreciation). However, in order to determine if this coverage (20%) is adequate, the applicant may use the straight line depreciation method. This method estimates the annual costs of replacing a component by dividing the cost of the component by the expected life of the component. Failure to set up an adequate asset replacement fund can adversely affect the viability of the water system.

The key issue is that the financial plan must prove that the system will eventually be "self sustaining".

Appendix A

DHEC ENVIRONMENTAL QUALITY CONTROL
DISTRICT OFFICES

DHEC District Offices of EQC	
Appalachia I 2402 N. Main Street Anderson, SC 29621 864-260-5569 (fax: 260-4855) *Anderson and Oconee Counties*	**Lower Savannah** 218 Beaufort Street, NE Aiken, SC 29801 803-641-7670 (fax: 641-7675) *Aiken, Allendale, Bamberg, Barnwell, Calhoun and Orangeburg Counties*
Appalachia II 301 University Ridge, Suite 5800 Greenville, SC 29601 864-241-1090 (fax: 241-1092) *Greenville and Pickens Counties*	**Pee Dee** 145 E. Cheves Street Florence, SC 29506 843-661-4825 (fax: 661-4858) *Chesterfield, Darlington, Dillon, Florence, Marion and Marlboro Counties*
Appalachia III 975 N. Church Street Spartanburg, SC 29303 864-596-3800 (fax: 596-2136) *Cherokee, Spartanburg and Union Counties*	**Trident** 1362 McMillan Ave., Suite 300 Charleston, SC 29405 843-740-1590 (fax: 740-1595) *Berkeley, Charleston and Dorchester Counties*
Catawba P.O. Box 100 Fort Lawn, SC 29714 803-285-7461 (fax: 285-5594) *Chester, Lancaster and York Counties*	**Upper Savannah** 613 South Main Street Greenwood, SC 29646 864-223-0333 (fax: 223-6935) *Abbeville, Edgefield, Greenwood, Laurens, McCormick and Saluda Counties*
Central Midlands P.O. Box 156 State Park, SC 29147 803-935-7015 (fax: 935-6724) *Fairfield, Lexington, Newberry and Richland Counties*	**Waccamaw** 1705 Oak Street Plaza, Suite #2 Myrtle Beach, SC 29577 843-448-1902 (fax: 946-9390) *Georgetown, Horry and Williamsburg Counties*
Low Country 1313 Thirteenth Street Port Royal, SC 29935 843-522-9097 (fax: 522-8463) *Beaufort, Colleton, Hampton and Jasper Counties*	**Wateree** 105 Magnolia Street Sumter, SC 29151 803-778-1531 (fax: 773-6366) *Clarendon, Kershaw, Lee and Sumter Counties*

Appendix B

CONSTRUCTION COSTS

ESTIMATE OF CAPITAL COST OF CONNECTING TO AN EXISTING SYSTEM NAME OF EXISTING SYSTEM: _____				
ITEM	**UNIT**	**QUANTITY**	**UNIT COST**	**COST**
Impact Fee				
Tap Fee				
Meter Fee				
Backflow Preventer (type?_____)				
Distribution System Water Lines				
Size and Type:_____				
Size and Type:_____				
Valves in Distribution System				
Size and Type:_____				
Size and Type:_____				
Blowoff(s)				
Size and Type:_____				
Size and Type:_____				
Fire Hydrant (if required by system)				
Bridge/culvert Crossings (complete)				
Bore and Jack Casing (complete)				
Thrust blocking				
Total Coliform Analyses				
Asphalt Repair				
Engineering Consultant Design Fee				
Engineer's Inspection/Certification Fee				
Legal & Administrative				
Land and Right-of-way				
Easement Survey				
Other (attach itemized list of other costs)				
TOTAL COSTS				

ESTIMATE OF THE CAPITAL COST OF CONSTRUCTING A NEW SOURCE (WELL)				
ITEM	**UNIT**	**QUANTITY**	**UNIT COST**	**COST**
Drilling of Well				
Grout				
Pumping Test				
Water Quality Analyses				
Pump				
Drop Pipe				
Well Head Piping (pipe, pressure gauge, meter, etc)				
Electrical (all wiring, controls, service box, etc.)				
Concrete Pad & Well house				
Storage Tank				
Distribution System Water Lines				
Size and Type:_____				
Size and Type:_____				
Valves in Distribution System				
Size and Type:_____				
Size and Type:_____				
Blowoffs				
Size and Type:_____				
Size and Type:_____				
Thrust Blocking				
Treatment Equipment (provide itemized list of costs)				
Total Coliform Analyses				
Engineering Consultant Design Fee				
Engineer's Inspection/Certification Fee				
Other (attach itemized list of other costs)				
TOTAL COSTS				

Appendix C

ANNUAL OPERATION AND MAINTENANCE

ANNUAL OPERATION AND MAINTENANCE COSTS OF CONNECTING TO AN EXISTING SYSTEM NAME OF EXISTING SYSTEM: _____	
ITEM	**ANNUAL COST**
Cost of Water from Existing System (provide calculations)	
Testing of Backflow Prevention Device(s)	
DHEC Fee/Water Quality Monitoring	
Chemicals	
Maintenance	
South Carolina Public Service Commission	
Operator/Administrative Cost (attach itemized list of cost)	
Other Cost (attach itemized list of other costs)	
TOTAL ANNUAL O & M COSTS	

ANNUAL OPERATION AND MAINTENANCE COSTS OF CONSTRUCTING A NEW SOURCE	
ITEM	**ANNUAL COST**
DHEC Fee/Water Quality Monitoring	
Electricity	
Chemicals	
Maintenance	
South Carolina Public Service Commission	
Operator /Administrative Cost (attach itemized list of cost)	
Other (attach itemized list of other costs)	
TOTAL ANNUAL O & M COSTS	

Appendix D

DRINKING WATER QUALITY SAMPLING
OF
NEW PUBLIC WATER SUPPLY WELLS

DRINKING WATER QUALITY SAMPLING OF NEW PUBLIC WATER SUPPLY WELLS

All new wells serving "community" and "non-transient non-community" water systems must be sampled and analyzed for the drinking water quality parameters included in Tables 1, 2 and 3 below. The samples must be analyzed by a certified laboratory. The results of these analyses must be included in the follow-up application for a "test well" permit or with the engineer's certification letter if the well construction project is permitted in one step. Please refer to Section R.61-58.1(B)(8) of the State Primary Drinking Water Regulations concerning the steps involved in the permitting of new groundwater sources.

Unless otherwise specified, the unit of measure for each of the maximum contaminant levels (MCL) listed in the following tables is in milligrams per liter (mg/l).

TABLE 1

PRIMARY DRINKING WATER PARAMETERS

INORGANIC CHEMICALS (IOC)

Contaminant	MCL	Contaminant	MCL
Arsenic	0.05	Fluoride	4.0
Antimony	0.006	Lead	TT [1]
Barium	2.0	Mercury	0.002
Beryllium	0.004	Nickel	0.1
Cadmium	0.005	Nitrate	10.0
Chromium	0.1	Nitrite	1.0
Copper	TT [1]	Selenium	0.05
Cyanide	0.2	Thallium	0.002

PRIMARY DRINKING WATER PARAMETERS (CONTINUED)

SYNTHETIC ORGANIC CHEMICALS (SOC)

Contaminant	MCL	Contaminant	MCL
Alachlor	0.002	Dalapon	0.2
Atrazine	0.003	Di(2-ethylhexyl)adipate	0.4
Carbofuran	0.04	Di(2-ethylhexyl)phthalate	0.006
Chlordane	0.002	Dinoseb	0.007
Dibromochloropropane (DBCP)	0.0002	Diquat	0.02
Ethylene dibromide (EDB)	0.00005	Endothall	0.1
Heptachlor	0.0004	Endrin	0.002
Heptachlor epoxide	0.0002	Glyphosate	0.7
Lindane	0.0002	Hexachlorobenzene	0.001
Methoxychlor	0.04	Hexachlorocyclopentadiene	0.05
PCBs	0.0005	Oxamyl (vydate)	0.2
Pentachlorophenol	0.001	Picloram	0.5
Toxaphene	0.003	Simazine	0.004
Benzo(a)pyrene	0.0002	2,3,7,8-TCDD (Dioxin)	30.0 pg/L [2]
		2,4-D	0.07
		2,4,5-TP	0.05

VOLATILE ORGANIC CHEMICALS (VOC)

Contaminant	MCL	Contaminant	MCL
Benzene	0.005	trans-1.2-Dichloroethylene	0.1
Carbon tetrachloride	0.005	Trichloroethylene	0.005
cis-1,2-Dichloroethylene	0.07	Vinyl chloride	0.002
Dichloromethane	0.005	Xylenes (total)	10.0
Ethylbenzene	0.7	1,1-Dichloroethylene	0.007
Monochlorobenzene (chlorobenzene)	0.1	1,1,1-Trichloroethane	0.2
o-Dichlorobenzene	0.6	1,1,2-Trichloroethane	0.005
para-Dichlorobenzene	0.075	1,2-Dichloroethane	0.005
Styrene	0.1	1,2-Dichloropropane	0.005
Tetrachloroethylene	0.005	1,2,4-Trichlorobenzene	0.07
Toluene	1.0		

PRIMARY DRINKING WATER PARAMETERS (CONTINUED)	
NATURALLY OCCURRING RADIONUCLIDES[3]	
Contaminant	MCL
Radium 226 and Radium 228 Gross Alpha particle activity (including radium-226 but excluding radon and uranium)	5 pCi/l [4] 15 pCi/l [4]
MAN-MADE RADIONUCLIDES[3]	
Contaminant	MCL
Beta particle and photon activity	4 mrem [5]
MICROBIOLOGICAL	
Contaminant	MCL
Total Coliform Turbidity	* [6] 5.0 NTU [7]

TABLE 2			
SECONDARY DRINKING WATER PARAMETERS			
Contaminant	MCL	Contaminant	MCL
Aluminum Chloride Color Copper Fluoride Iron	0.05 to 0.2 250.0 15colorunits 1.0 2.0 0.3 [8]	Manganese pH Silver Sulfate Total Dissolved Solids (TDS) Zinc	0.05 [8] 6.5 - 8.5 0.1 250.0 500.0 5.0

TABLE 3

OTHER WATER QUALITY PARAMETERS

Contaminant	MCL
Alkalinity	None
Calcium Hardness	None
Conductivity	None
Sodium	None [9]

1. Treatment Technique as outlined in the Lead and Copper Rule (R.61-58.11). Source water treatment for the removal of lead or copper will be required if the lead level in the well water exceeds .015 ml/l or the copper level in the well water exceeds 1.3 mg/l.
2. The unit of measure is in picograms per liter. Monitoring for dioxin may be waived by the Department if the design engineer can certify that the well is not within 1000 feet of a pulp and paper manufacturing facility, wood treatment facility, municipal or industrial waste incineration facility, military installation, and chemical plant or site where 2,4,5 trichlorophenol (Silvex) or hexachlorophene was manufactured and/or disposed of (this would include but not be limited to any municipal or county landfill or disposal site).
3. Radiological testing is required for "community" water systems only.
4. Testing is only required for Type I wells (open hole wells into bedrock aquifers). The unit of measure is in picocuries per liter.
5. The unit of measure is in millirem per year.
6. In accordance with the Total Coliform Rule, no more than 5% of the samples per month may be positive. For systems collecting fewer than 40 samples per month, no more than 1 sample per month may be positive.
7. The water produced by a completed well must have a turbidity of less than 5.0 nephelometric turbidity units (NTU) unless it can be demonstrated that the turbidity is due to the natural water quality of the aquifer.
8. Treatment will be required for all new wells serving community water systems which exceed the MCL.
9. There is no MCL for sodium. However, community water systems are required to monitor for sodium (annually for systems which utilize surface water and every three years for systems utilizing groundwater) and notify the Department of the sodium levels within three months of receiving the results.

Appendix E

PROJECTION OF REVENUES AND EXPENSES

PROJECTION OF REVENUES AND EXPENSES

	Year 1	Year 2	Year 3	Year 4	Year 5
Revenues					
Impact Fee					
Tap Fee					
User Charge					
Total Revenues					
Expenses					
DHEC Fee					
Monitoring [1]					
Electricity					
Maintenance					
Taxes					
Fees [2] (specify) _____					
Principal/Interest Payments					
Total Expenses					
Net Income					
Replacement Fund					
Profit (Loss)					

[1] Monitoring required which is not included as part of the DHEC fee. For "State" and 'Transient Non-community" water systems this cost is normally zero. However, please check with DHEC to confirm.

[2] Fees other than DHEC fee.